

Appl. No. 10/552,186  
Amdt. dated January 4, 2007  
Reply to Office Action of July 5, 2006

## **REMARKS**

Applicant appreciatively notes the thorough search and citation of references by the Examiner. In response to the Office Action Claims 1 and 2 have been canceled, Claim 3 has been amended to place it in independent form, Claims 4 and 5 have been amended to depend from the newly independent Claim 3. Claims 6 and 7 have been canceled and Claim 10 has been added to more adequately cover Applicant's invention.

The Examiner has rejected Claims 1-4 under 35 U.S.C. 102(e) as being anticipated by Lo et al. (6,507,120). Applicant has disclaimed Claims 1 and 2 and has rewritten Claims 3 and 4 in independent form. With respect to Claim 3, the recited structure includes the construction of electrical contacts such that "each of said electrical contacts include longitudinally extending notches". These notches provide improved mechanical attachment to the molded package; further, the exposed surface of these contacts is shaped to identify the electrical function of the encapsulated device. Claim 4 directed to this exposed surface has been rewritten to depend from amended Claim 3. The Examiner has referenced Figure 2 of the Lo et al. reference as anticipatory of Claims 3 and 4. A review of the Lo et al. reference does not disclose the utilization of such longitudinally extending notches; rather, a solder mask is used to form an opening 222. This opening as shown in Figure 5 of the Lo et al. reference facilitates the attachment of solder bumps. In contrast, the longitudinally extending notches such as those

Appl. No. 10/552,186  
Amdt. dated January 4, 2007  
Reply to Office Action of July 5, 2006

shown in Figure 5 of the application “lock” the contact into the molded package and provide improved mechanical attachment. The exposed contact surface is shaped to identify the electrical function of the encapsulated device (see application Figure 3). The Examiner has rejected this claim by reference to Figure 2 of the Lo et al. reference. It is not seen how the disclosure in Lo et al. and Figure 2 anticipate the shaping of electrical contacts to identify the electrical function of the contact.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Sunada (5,625,223). The Examiner has applied Claim 1 to Sunada and indicates that subparagraph (c) is to be found in Figure 5 of Sunada. This subparagraph requires that “each of said electrical contacts providing an exposed contact surface co-planar with said one of said surfaces and terminating at a junction between said one of said surfaces and another of said surfaces”. It is noted that in Sunada the electrical contacts do not terminate at a junction between the corresponding surfaces of the package. Similarly, subparagraph (d) also requires the termination of the contacts “only at oppositely disposed package surfaces”. The Examiner has applied these subparagraphs (c) and (d) to Claim 1; however, it is respectfully submitted that the Sunada reference does not provide such contact termination but instead extends the contacts beyond the corresponding surfaces.

With respect to Claim 3, the limitation of longitudinally extending notches in electrical

Appl. No. 10/552,186  
Amdt. dated January 4, 2007  
Reply to Office Action of July 5, 2006

contacts is recited; however, there are no such longitudinally extended notches in Figure 5 of Sunada as indicated by the Examiner. Similarly, with respect to Claim 4 limited to “the exposed contact surface of said electrical contacts is shaped to identify the electrical function of the encapsulated device”, it is not seen how the referenced Figure 5 of Sunada is capable of identifying the electrical function of the encapsulated device. Applicant’s contact surfaces are clearly shaped as indicated in Figure 3 of the subject application to indicate polarity or other electrical function of the device to which the contacts are connected.

Claims 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Song et al. (5,770,888). Although there are distinguishing characteristics in Applicant’s device, Claims 6 and 7 have been cancelled.

Claims 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Cavasin (5,302,849). The Cavasin reference discloses a grid array semiconductor device that includes a semiconductor die within a plastic package electrically connected to leads extending to respective surfaces of the die. Claims 8 and 9 of the application require that “said electrical contacts providing an exposed contact surface coplanar with each of two package surfaces and terminating at a junction between the two package surfaces”. That is, the electrical contacts are exposed and coplanar with each of two intersecting package surfaces. The cited reference has exposed contacts at the ends of the vertical portions 20 but are not exposed at the adjacent

Appl. No. 10/552,186  
Amdt. dated January 4, 2007  
Reply to Office Action of July 5, 2006

surface by virtue of the use of insulative material 34. Further, Applicant's electrical contacts provide "an exposed contact surface coplanar with each of said two package surfaces" and wherein these exposed electrical contacts that are coplanar with adjacent package surfaces "terminate at a junction between said package surfaces". It is the purpose and intention of the embodiment shown in Figure 7 to which the Claims 8 and 9 are directed is that the contact areas can be on both the bottom of the molded package and on the opposite ends of the molded package. The Cavasin reference is obviously directed away from this feature in view of the fact that a deliberate layer of insulating material is coated on the sides of the package to insulate the conductors.

In view of the above amendments and arguments, it is respectfully submitted that the application is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

CAHILL, von HELLENS & GLAZER P.L.C.



William C. Cahill  
Registration No. 19,742

155 Park One  
2141 E. Highland Avenue  
Phoenix, Arizona 85016  
602/956-7000  
602/956-4298-Fax